

SHEPELEVA, Ye.L.

Complexes of spores (1) from sediments in the Bavly series
of the Volga-Ural region. Trudy VNIGNI no.37:7-17 '63.
(MIRA 16:8)

SHEPELEVA, Ye.D.; TIMOFEYEV, B.V.

Micropaleophytological characteristics of the Pachelma series and its stratigraphic analogues. Dokl. AN SSSR 153 no.5:1158-1159 D '63. (MIRA 17:1)

1. Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy geologo-razvedochnyy institut, Leningrad, i Vsesoyuznyy nauchno-issledovatel'skiy neftyanoy geologorazvedochnyy institut, Moskva. Predstavлено академиком D.V. Nalivkinym.

Indicator transformations of fuchsin V. N. Skvortsov
and E. S. Shepeleva. *J. Gen. Chem. (U. S. S. R.)* **6**,
35-62 (1886). - With the help of an equation, characteriz-
ing fuchsin (I) in uv. and high ρ_H , it was detd. that the
titration point of I is shifted with increasing I concn. to
higher ρ_H , and that as regards the influence of temp. on
the color change, the change in all indicator consts. must be
considered, i. e., its so-called const. as well as change in
 K_m . The salt error was found to be small. I, having an
end point in quite alk. solns., can be used for the detn. of
zincates.

Lewis W. Butz

SHEPELEVA, YE. S.

PA 27/49T25

USSR/Chemistry - Magnesium Compounds, Organic

Jan/Feb 49

Chemistry - Synthesis

"Study in the Field of Phosphor Organic Compounds: XI, Case of Anomalous Course of the Synthesis of Magnesium Organic Compounds," M. I. Kabachnik, Ye. S. Shepeleva, Inst Org Chem, Acad Sci USSR, 4 pp

"IZ Ak Nauk SSSR, Otdel Khim Nauk" № 1

Gives anomalous reaction of haloid compound of phosphor ($PSCl_3$) with methyl iodide of magnesium. Basic product of the reaction is a sulfide of the completely methylated aliphosphyl, i.e., a substance containing two atoms of phosphor in the molecule.

27/49T25

USSR/Chemistry - Magnesium Compounds, Organic (Contd)

Jan/Feb 49

Good yield of dimethylphosphinic acid is obtained by the oxidation of this sulfide. Submitted
3 Mar 49

27/49T25

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CA

Reaction of benzaldehyde with phosphorus trichloride
 M. I. Kabachnik and E. S. Shepkova, *Avad. SSSR*,
 S.R., Moscow, *Izdat. Akad. Nauk SSSR, Odz*
Khim. Nauk 1950, 39-46. The mode of interaction of
 aldehydes with PCl_3 , which has not been adequately ex-
 plained by the earlier work of Tosaka (Memos 5, 627
 (1884)), Page et al. (6, 2064), or Voinov, Tali et al. (16,
 97), appears to involve the preliminary formation of a
 trivalent P derivative, rather than a "pentavalent" one usu-
 ally ascribed to the 1st reaction stage. Thus, BzH first
 forms $\text{PhCH}_2\text{Cl}_2\text{P}^{\text{V}}$ which on heating undergoes the
 Arbutov isomerization, i.e., the chlorophosphonate
 In this case, the separation of V makes possible a room
 temp isomerization. The theory conforms to the known
 difficult alkylation of PCl_3 and to the known reaction of 3
 moles of an aldehyde with PCl_3 . Mixing 41.2 g. PCl_3
 with 30 g. BzH (both freshly distilled) with cooling, fol-
 lowed by heating in sealed tubes 2 hrs at 195-205°, gave a
 viscous product, most of which (32.4 g., 60.1%
 yield). Excess PCl_3 gave 6.6% yield. The residue is a
 glass, the amt of which increases with lower temps. The
 main product is $\text{PhCH}_2\text{Cl}_2\text{P}^{\text{V}}$, resulting from the
 reaction of BzH and PCl_3 in a 1:1 ratio in the cold yields a
 pink oil which cannot be dried and yields on hydrolysis 2
 g. of BzH and $\text{PhCH}_2\text{OH-PO(OH)}_2$. 1.15 g. cal-
 culated 1.2 g. BzH and 0.71% $\text{PhCH}_2\text{PO(OH)}_2$
 at atm pressure. When BzH and PCl_3 are heated
 at 128-90°, d. 140.0, wt 1502 g., the same is

obtained in 60.1% yield when a crude mixt of 7 g. BzH
 and 10.3 g. PCl_3 is heated 2 hrs. at 195-205°, then treated
 with EtOH , 1.5 g. with 25 g. MeOH similarly gave 52%
 $\text{PhCH}_2\text{PO(OH)}_2$, d. 127-129°, d₄²⁰ 1.283, wt 1529. Heating
 1 g. V with 0.5 g. PhCH_2OH gives progressively from 175
 to 200°, give much residue and 2 g. $\text{PhCH}_2\text{PO(OH)}_2$,
 d. 201-1, d₄²⁰ 1.21, wt 1588. Allowing V to stand in
 H_2O until dissolved, followed by evap. or heat at 40
 °, gave 60% $\text{PhCH}_2\text{PO(OH)}_2$, in 123.4°. From MePh
 then $\text{Me}_2\text{CO-CaH}_2$, the same result occurs after 10 days.
 Exposure of V to atm moisture (100% yield), the use of
 sodium (1.0) for hydrolysis, gives the salt of low m.p.
 which rises to 140° only after many crystals, with con-
 siderable Cl^- being found in the soln. The Cl^- and
 with AgClO_4 ppts the dry Ag salt, sol in HNO_3 and in ex-
 cess of an soln of the Cl^- salt, boiling the soln yields
 AgCl . $\text{PhCH}_2\text{PO(OH)}_2$, 2.0 g. and 2.01 g. AgClO_4
 in H_2O soln, refluxed until the original Ag salt has
 gradually been transformed into AgCl , gave 1.78
 g. AgCl (60%). and the Ag loss soln on evap.
 Cryst from AgCl , AgClO_4 , 2.1 g. then the AgCl gave
 $\text{PhCH}_2\text{PO(OH)}_2$, m.p. 123.4°, the 0.93 g.
 m.e. 131 and 140.1 and 143.0 with 0.8 g. PhNH_2 gave
 the solid salt in 28% yield. Action of excess PhNH_2
 to 1 g. V in EtOH and evap with dil. HCl , gave 2 g.
 taking up in EtOH and evap with dil. HCl , gave 2 g.
 $\text{PhCH}_2\text{PO(OH)}_2$, m.p. 102.4° from dil. EtOH , then
 from MeOH .

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CA

Reaction of aldehydes with halogen derivatives of trivalent phosphorus. M. I. Kabachnik and E. S. Shepeleva. *Doklady Akad. Nauk SSSR*, **75**, 219-223 (1950); cf. *C.A.* **44**, 72379. The formation of 1-chlorophosphonyl dichlorides by high-temperature reaction of PCl_3 with aldehydes and ketones in a general reaction with few exceptions. The variable ways with the nature of the carbonyl compd. and

with the halide used. Aliphatic aldehydes yield much HCl and give poor results, possibly because of extensive (viscous) denaturation brought about by PCl_3 as a water-retaining substance. $\text{C}_6\text{H}_5\text{CHO}$ could not be made to react even under very drastic conditions (5 hrs. at 250°). Aromatic aldehydes react well, but p -Me₂NC₆H₄CHO yields so much HCl that no clean product was isolated. m -O₂N₂C₆H₄CHO gives little of the desired product and causes considerable oxidation of the PCl_3 , yielding colored reduction products of the aldehyde. α -HOCH₂CHO yields much HCl and after 2.5 hrs. at $185-200^\circ$ gives a tarry mass which on distillation

readily gives the cyclic product: α -C₆H₅CHCl₂POCl₂OPO₂OR₂. The phosphonyl dichlorides readily form the corresponding free acids and esters with H_2O and alcohols. PCl_3 (or 1 mole of any aliphatic P halide) and 1.15 moles of scaled tube 3-6 hrs. at $185-200^\circ$ $\text{C}_6\text{H}_5\text{CHO}$ required 250° . Some others needed but $160-170^\circ$. On cooling, the viscous liquid was pumped free of HCl at a water pump, then distilled under a good vacuum. Only PrCHO gave a poorly distillable product which was not obtained in pure state. The following products were obtained: $\text{C}_6\text{H}_5\text{POCl}_2$ (40%) from $\text{C}_6\text{H}_5\text{CHO}$ and PCl_3 , Ab 77.8%, $d_4^{25} 1.1361$, $n_D^{20} 1.4978$; cf. Vakubovich and Ginsburg, *C.I.* **45**, 2837; *free* and *d*-ether, Ab 40.1%, $d_4^{25} 1.1992$, $n_D^{20} 1.4323$; α -C₆H₅PO₂Cl (48%) from $\text{C}_6\text{H}_5\text{CHO}$ and PCl_3 ; m - $\text{C}_6\text{H}_4\text{POCl}_2$ (6-12%) from $\text{C}_6\text{H}_4\text{CHO}$ and PCl_3 ; m - $\text{C}_6\text{H}_4\text{POCl}_2$ (7.5%) from $\text{C}_6\text{H}_4\text{CHO}$ and PBr_3 ; Ab 12.0%, $d_4^{25} 2.6762$, $n_D^{20} 1.6160$; Ab -C₆H₄POCl (44%) from $\text{C}_6\text{H}_4\text{CHO}$ and PCl_3 ; Ab -C₆H₄POCl (44%) from

1451

CA

NaHCO₃ and PCl₃ or 16% using AcH as such, 18-71, 2, d₂, 1-133, 63% 1-1911, free acid, m. 98-97% *p*-CH₃-P(=O)(OH)₂ (10%) from *p*CH₃O and PCl₃, b.p. 107°, d₂, 1-5398, 63% 1-1885, free acid, m. 86-7% *p*CH₃CH₂P(=O)(OH)₂ (10%) from 16H and PCl₃, m. 60-1% b.p. 121°, d₂, 1-4513, m. 1-5000, free acid, m. 134% *p*-Me-ester, b.p. 127°, d₂, 1-2811, m. 1-5288, *di-CH*₃-ester, b.p. 128-9°, d₂, 1-1920, m. 1-5125, *di-CH*₃-ester (20%) from BzH and (PhO)₂PCl, m. 60-3%, b.p. 208-10°, m. 1-5627, 0-3% *o*-phenylene-ester (24% from BzH and *o*-CH₃OPCl₃, m. about 122°, b.p. 181°, *p*-Me-C₆H₄-CH₂P(=O)(OH)₂ (35%) from PCl₃ and *p*-Me-C₆H₄-CH₂-OH, m. 52-53°, b.p. 129-5-30-5°, free acid, m. 150-1-5% *p*-CH₃-ester, CH₃CH₂P(=O)(OH)₂ (40%) from PCl₃ and *p*-CH₃CH₂-OH, m. 78-85% b.p. 104-1-5%, free acid, m. 152-3% *m*-CH₃-ester, CH₃CH₂P(=O)(OH)₂ (3-7% from PCl₃ and *m*-O₂NC₆H₄-CH₂-OH, m. 12-5-1-5%, b.p. 116°, *o*-CH₃-CH₂P(=O)(OH)₂ (10% from PCl₃ and *o*-HO-C₆H₄-CH₂-OH), b.p. 108-10°, d₂, 1-5692, 0-2% 1-5760, *o*-CH₃OH-C₆H₄-CH₂P(=O)(OH)₂, m. 100-2-5%. While the Fiesek reaction of aldehydes with PCl₃ [Munakata, S. 121, 625 (1884); 7, 200 (1886)] yields poorly crystallizable hydroxylphosphonic acids, the present procedure yields readily purifiable Cl analogs.

G. M. Kosolapoff

SHEPELEVA, E.S.

RT-778 Investigation into the field of organophosphorous compounds. Part 15
Issledovanie v oblasti fosfororganicheskikh soedinenii. Soobshchenie XV.
Izvestiia Akademii Nauk SSSR. Otdelenie Khimicheskikh Nauk, (1): 485-491, 1951.

SHEPELEVA, Ye. S. and KABACHNIK, M. I.

"Investigations of Organic Phosphorus Compounds. Report No 15: Reaction of Formaldehyde with Phosphorus Trichloride," Izvestiya Akademii Nauk, Otdeleniye Khimicheskikh Nauk, No 2, 1951, pp 185-190.

Inst. Org. Chem., AS USSR

Translation W - 21625, 6 Mar 52

Chem Abs 148

1-25-54

Organic chemistry

✓ Chloromethylphosphonic acid. M. I. Kabachnik and E. S. Shepeleva. Akad. Nauk S.S.R., Inst. Org. Khim. Sintez Org. Soedinenii, Sbornik 2, 150-1 (1952); cf. C.A. 45, 6569i, 10191b; Prat, et al., C.A. 44, 5800i. — Heating 200 g. PCl_3 and 30 g. paraformaldehyde in autoclave 10 hrs. at 250° yields 60-5% $ClCH_2POCl_2$, b₁ 87-8°, b₂ 52-3°, n_D²⁰ 1.4078, d₄₀ 1.6361. This added to 15 parts H₂O (external cooling may be needed in large run) undergoes hydrolysis; the soln. is evapd. on a steam bath, reevapd. after addn. of H₂O₂ and kept in a desiccator with KOH to yield crude $ClCH_2PO(OH)_2$, which is purified by soln. in Et₂O-MePh and slow evapn. of the solvents in a vessel with H₂SO₄ and paraffin chips. The acid m. 80 7.5°. G. M. K.

Chem
③

14-28-54

SHEPELEVA, E.S.

USSR/Chemistry

Card 1/1 : Pub. 40 - 13/22

Authors : Kabachnik, M. I., and Shepeleva, E. S.

Title : About the reaction of aldehydes with chlorophosphines

Periodical : Izv. AN SSSR. Otd. khim. nauk 5, 862-867, Sep-Oct 1953

Abstract : The reaction of para-formaldehyde with the most accessible dichlorophosphines - ethyldichlorophosphine and phosphenyl chloride, was investigated. Results indicate that para-formaldehyde reacts with alkyl- and aryl dichlorophosphines resulting in the formation of secondary alkyl (or aryl)-chloromethylphosphinic chlorides. The derivation of free acids and their esters is described. The products obtained from the reaction of diphenylchlorophosphine with para-formaldehyde, are listed. Eight references: 5-USSR and 3-German (1876-1951). Table.

Institution : Academy of Sciences, USSR, Institute of Organic Chemistry

Submitted : December 31, 1952

Sheremetev/R.S.

✓ Synthesis and properties of some esters of chloromethyl and chloroalkylthiophosphonic acids E. S. Shepeleva and P. I. Smirn. Doklady Akad. Nauk S.S.R. 109, 666 (1950); cf. Becek, et al., C.A. 35, 16841; Bannard, et al., C.A. 48, 11302g. --Treatment of 2.3 g. Na under Et_2O with 9 g. Bu_3SH gave a suspension of Bu_3Na which was treated at 0° with 8.5 g. $\text{ClCH}_2\text{POCl}_3$ in Et_2O ; after 4 hrs. at room temp. the mixt. was washed with H_2O and distd. yielding 60% $\text{ClCH}_2\text{PO}(\text{SBu})_3$, b_2 153-4°, d_4^{20} 1.1411, n_D^{20} 1.5300. Similarly were prep'd. the following esters of mercaptans, while the O -alkyl esters were prep'd. from RPOCl_3

and the alc. (d_4^{20} and n_D^{20} given): 74% $\text{ClCH}_2\text{PO}(\text{OCH}_2\text{Me})_3$, b_2 73-4°, 1.1176, 1.4340; 64% $\text{ClCH}_2\text{PO}(\text{OBu})_3$, b_2 112-13°, 1.0839, 1.4420; $\text{ClCH}_2\text{PO}(\text{OCH}_2\text{CH}_2\text{CH}_2\text{Me})_3$, 70%, b_2 129-30°, 1.0430, 1.4440; 60% $\text{ClCH}_2\text{PO}(\text{OCH}_2\text{CH}_2\text{CH}_2\text{CH}_2)_3$, b_2 122-3°, 1.1890, 1.4700; 47% $\text{ClCH}_2\text{PO}(\text{SCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{Me})_3$, b_2 157-8°, 1.0960, 1.5230; 51% $\text{ClCH}_2\text{CH}_2\text{PO}(\text{OBu})_3$, b_2 133-4°, 1.0640, 1.4430; 54% $\text{ClCH}_2\text{CH}_2\text{PO}(\text{OCH}_2\text{CH}_2\text{CH}_2\text{CH}_2)_3$, b_2 139-40°, 1.0344, 1.4430; 40% $\text{ClCH}_2\text{CH}_2\text{PO}(\text{SBu})_3$, b_2 168-70°, 1.1185, 1.5230. The esters were tested in four-ball friction tester with a standard sample of lubricating oil. Esters of chloromethylphosphonic acid increased the critical load bearable by the oil by a factor of 1.5-2; the esters of chloroethylphosphonic acid were less effective. Substitution of S for O in the esters produced no significant change in behavior. Hence, the antiwear properties of the esters rest largely on the content of P and Cl.

C. M. Kusolapoff

PM myc

Petroleum Inst. As USSR

CHERKAS, V.S., ZHUK, I.I., CHIR, V.V., KLYKOV, I.V. (Institute of Petroleum, SO "NIIKhR, Moscow)

"Use of Organophosphorus Compounds for Increasing the Quality of Lubricants"
(Primeneniye fosfororganicheskikh sovedineniy dlya povysheniya kachestva smazochnykh malsey)

Chemistry and Uses of Organophosphorus Compounds
(Khimiya i primeneniye fosfororganicheskikh sovedineniy),
Trudy of First Conference, 7-10 December 1955, Kazan,
pp. Published by Kazan Artil. Ak USSR, 1957
112-123,

Shepeleva, Ye.S.
 USSR/Chemical Technology - Chemical Products and Their
 Application. Treatment of Natural Gases and Petroleum.
 Motor and Jet Fuels. Lubricants. I-8

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2599
 Author : Sanin, P.I., Shepeleva, Ye.S., Sher, V.V., Ul'yanova, A.V.
 Inst : Academy of Sciences USSR
 Title : Use of Organophosphorus Compounds to Enhance the Quality
 of Lubricating Oils.
 Orig Pub : Sb.: Khimiya i primeneniye fosfororgan. soyedineniy. M.,
 AN SSSR, 1957, 112-123
 Abstract : Description of the results of investigations of the effects
 of different organophosphorus compounds on the wear-redu-
 cing, detergent and anticorrosion characteristics of oil.
 It was found that lower trialkyl-trithiophosphites and tri-
 alkyl thiophosphates, containing C_3-C_5 alkyls, improve the

Card 1/4

USSR/Chemical Technology - Chemical Products and Their
 Application. Treatment of Natural Gases and Petroleum.
 Motor and Jet Fuels. Lubricants. I-8
 APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001549110010-9

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2599
 lubricating properties of oil to a greater extent than ad-
 ditives of this type containing long hydrocarbon radicals
 (for example, n-trioctadecyl trithiophosphate); trialkyl
 thiophosphates are less active than the trialkyl trithio-
 phosphites. The presence of phosphorus in the molecule
 of additives of this type, affects, first of all, their ca-
 pacity of increasing the critical load of the oil, while
 the presence of sulfur -- the capacity of improving the
 breaking-in of metal surfaces subjected to friction. It
 was ascertained that esters of chloromethyl- and beta-chlo-
 rethyl phosphinic and thiophosphinic acids, approximate,
 as wear-reducing additives, the most active thiophosphites
 and thiophosphates; the action of chlorine in compounds
 of this type is analogous to the effect of sulfur on the
 activity of thiophosphites and thiophosphates. The

Card 2/4

Chemical Products and Their
 Application. Treatment of Natural Gases and Petroleum.
 Motor and Jet Fuels. Lubricants. I-8

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2599

156600

119700

29447
S/081/61/000/017/149/166
B117/B138

AUTHORS: Sanin, P. I., Shepeleva, Ye. S., Ul'yanova, A. V., Kleymenov, Ye. V.

TITLE: Effect of synthetic lubricating oils additives on frictional wear

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1961, 472 - 473,
abstract 17M224 (Tr. 3-y Vses. konferentsii po treniyu i
iznosu v mashinakh. M., AN SSSR, v. 3, 1960, 234 - 239)TEXT: The relative effect on the seizing load (SL) and on the wear of a number of Cl-, S-, and P-containing additives was studied on a 4-ball friction machine. The additives were tested in the solution of a highly refined mineral oil with a viscosity of 20.8 cst/50°C at a concentration of 6 moles of additive per 100 g of oil. Oleic and stearic acids, as well as methyl stearate, did not change the character of the wear-load curve, nor increase the SL of the pure oil (69 kg). SL were determined for the following additive solutions (in kg): methyl dichlorostearate, 126; tetrachloronaphthalene, 126; chlorinated paraffin C₂₅H₅₁Cl, 79; much
Card 1/2

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S/061/61/000/017/149/166
B117/B138

Effect of synthetic lubricating...

higher chlorinated paraffin $C_{25}H_{40}Cl_{12}$, $(n-C_3H_7S)_3P$, 110; $(n-C_{18}H_{37}S)_3P$, 68; $(C_4H_9O)_3PO$, 102; $(C_4H_9S)_3PS$, 69. An introduction of 1, 2, 3, and 4 S atoms in transition from $(C_4H_9O)_3PO$ to $(C_4H_9S)_3PS$ reduced the SL, but decreased the wear with loads above SL. Particularly high SL were obtained for compounds with molecules containing P and CCl_3 groups: $(C_4H_9O)_2P(O)CCl_3$ (the SL is 2.5 times higher than for pure oil), $(CCl_3CH_2O)_3P$ (SL > 300), and tri-(trichloro-tert-butyl)-phosphite (SL > 300). At the same time these compounds reduce wear with loads above SL. [Abstracter's note: Complete translation.]

WT

Card 2/2

15 6600

119700

AUTHORS.

Sanin, N. I., Shepeleva, Ye. S., Ul'yanova, A. V.
Kleymenov, B. V.

TITLE: Synthesis and properties of antiwear additives to lubricants

PERIODICAL: Referativnyy zhurnal Khimiya, no. 22, 1961, 397, abstract
22M122 (Tr. In-ta nefti. AN SSSR, v. 4, 1960: 98 - 117)TEXT: A four-ball friction machine was used for studying the effect of various antiwear additives consisting of high-molecular aliphatic esters and organic compounds of S, P, and Cl. The authors employed solutions of the additives (6 mmoles per 100 g) in highly pure mineral oil (viscosity 20.8 centistokes at 50°C). Of no use under heavy load were additives the effect of which was based on adsorption only (high-molecular esters and higher fatty acids). Additives containing Cl (methyl esters of mono- and dichloro stearic acid, tetrachloro naphthalene, fractions of chlorinated paraffin) increased the critical load (CL) (the seizing load), and considerably reduced the wear under loads higher than CL. Additives of the types $(RS)_3P$ and $(RO)_3PS$ were found to reduce CL with increasing length

Card 1/2

31566
S/081/61/000/022/062/076
B101/B147

Synthesis and properties.

of the alkyl, $R(C_3 - C_8)$; efficient additives of these types should contain $R = C_3 - C_5$. $(RS)_3P$ proved to be more efficient than $(RO)_3PS$. In additives containing P and S, P mainly increased the CL while S decreased the wear under loads above CL. Phosphinic esters, $R'PO(OR)_2$, proved to be more efficient than phosphoric esters containing no C-P bond. Introduction of Cl in phosphinic and phosphoric esters increased the efficiency of additives, and reduced the wear under loads above CL. Phosphinic and phosphoric esters containing the CCl_3 group were of utmost efficiency.

The effect of the CCl_3 group increasing the efficiency of antiwear additives was confirmed by the action of tetrachloro alkanes, $CCl_3(CH_2)_nCl$ ($n = 3 - 5$). The authors discuss the mechanism of action of antiwear additives containing various active elements and groups. There are 2 references. See also RZhKhim, 1961, 5M233. [Abstracter's note: Complete translation.]

Card 2/2

82511
S/065/60/000/008/003/007
E030/E412

15.6600

AUTHORS: Sanin, P.I., Shepeleva, Ye.S. and Kleymenov, B.V.

TITLE: Some Data on the Activity of Additives Containing the
CCl₃ Group

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No.8,
pp. 24-28

TEXT: It has been shown that molecules containing phosphorus and
CCl₃ groups are exceptionally good friction-reducing additives under
high loads. Presumably this is due to the formation of phosphides
and chloride layers on the metal. It is not merely the presence of
chlorine which imparts activity, since monochloro-alkanes are not
particularly effective, but the CCl₃ group as a whole. This group
is known to be particularly reactive, as in the action of
electrophilic or copper reagents, and in the formation of
1,5,5,6,6,10-hexachlorodecane from 1,1,1,5-tetrachloropentane.
The base greases had a kinematic viscosity of 20.8 cs at 50°C. The
trichloro compounds were formed by the polymerization of ethylene in
the presence of carbon tetrachloride and were added as 6 times
millimolar to the grease. The greases were subjected to the four-
ball test. Firstly, the effect of the trichloro group was shown by

Card 1/3

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82511

S/065/60/000/008/003/007
E030/E412Some Data on the Activity of Additives Containing the CCl_3 Group

comparing the base grease, which had a critical load of 64 kg, with $\alpha, \alpha, \alpha, \omega$ tetrachloro-alkanes which had critical loads from 100 - 110 (C_5 was as high as 130 kg). This behaviour is analogous to that of CCl_4 , which is active, and of monochloro-alkanes, which are relatively inactive. Secondly, the addition of phosphorus was shown to increase the surface activity still further, as shown by comparing the methyl, trichloro and chloro ethylethers of methylphosphonic acid (critical loads less than 170 kg), and the trichloroethyl-diethyl ether of phosphonic acid (130 kg). Increasing the additive concentration fourfold had no effect. Increasing the number of CCl_3 groups produces further striking increases in the high-load properties and in fact no critical loads could be observed with tri (trichloroethyl) phosphate and tri (trichloro-tert. butyl) phosphate, and the mark was only 8 mm in diameter at 300 kg load (30000 kg/cm² pressure). Smaller variations in activity and thermal stability were dependent on the position of the CCl_3 group in the molecule. There are 3 figures.

Card 2/3

8251I

S/065/60/000/008/003/007
E030/E412

Some Data on the Activity of Additives Containing the CCl_3 Group

3 tables and 11 references: 5 Soviet and 6 English.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR
(Institute for Petro-Chemical Synthesis, AS USSR)

Card 3/3

✓

3/6/91
S/510/60/014/000/006/006
D244/2307

AUTHORS: Sanin, P.I., Shepeleva, Ye.S., Ul'yanova, A.V., and Kleymenov, B.V.

TITLE: Synthesis and properties of anti-wear additives to lubricating oils

SOURCE: Akademiya nauk SSSR. Institut nefti. Trudy, v. 14, 1960,
Khimiya nefti, 98 - 117

TEXT: The authors synthesized the wear-reducing properties of Cl, S and P compounds and also thio-phosphoroorganic and chlorophosphoroorganic compounds. The anti-wear properties were examined by dissolving the additives in a highly refined mineral oil, viscosity 20.8 cs at 50°C. The concentration of all the additives examined was 6 millimoles per 100 g of oil. The four-ball machine was used as a wear-tester with standard 12.7 mm diameter balls from IX-9 (ShKh-9) steel. The tests were conducted at 600 rpm. It was shown that the high molecular weight esters and acids which were assumed to have adsorptive anti-wear mechanisms, were not effective during the rubbing under high loads. Chlorinated esters of stearic acid and

Card 1/5

S/510/60/014/000/006/C06

D244/D307

Synthesis and properties of anti-wear ...

also fractions of chlorinated paraffin wax reduced the wear considerably above the seizure load. The best results were obtained with the wax fraction containing about 40 % Cl, the base oil containing about 7 % of the additive. For a series of esters $(R S)_3 P$ and $(R O)_3 P$ the critical load that could be tolerated by the oil blend, decreased with the increasing length of the hydrocarbon radical R. Thus any of the compounds with $R = C_3 - C_5$ could be considered as possible additives. Trialkyl phosphates were less active as additives than trialkyl trithiophosphates. The presence of P and thiophosphate types exerted a predominant influence on their capacity to increase the critical load. The presence of S improved the wear-reducing properties at loads above the critical load. Chlorine in esters of chloralkylphosphorous acids acted in the same direction as S in thiophosphites. Thus the presence in one compound of P and Cl or P and S is very beneficial. The phosphite compounds $R'PO(OR)_2$ having a C-P link, were considerably more active than the compounds containing only alkoxy groups, such as phosphites. It was shown that compounds containing the group - CCl_3 have high anti-wear activity. X

Card 2/5

S/510/60/014/000/006/006

Synthesis and properties of anti-wear ... D244/D307

Esters $\text{CCl}_3\text{P}(\text{OR})_2$ increased the critical load to a value more than twice of that for the base oil and decreased the wear considerably in the region of high loads. It was established that the specific activity of the compounds containing CCl_3 group is due to a high reactivity of Cl in the group with metal surfaces, on which a chloride film is formed. The wear reducing properties of additives of the $\text{CCl}_3\text{P}(\text{OR})_2$ type is due to the simultaneous action of the reactive Cl and P resulting in the formation of chloride and phosphide films on the rubbing metal surfaces. There are 12 figures and 9 tables.

X

Card 3/3

80061
S/020/60/132/01/38/064
B011/B126

5.3630

AUTHORS: Sanin, P. I., Voronkov, M. G., Shepeleva, Ye. S., Ionin, B. I.

TITLE: The Interaction Between Dialkyl-phosphorous Acids¹ and Quinones¹

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 1, pp. 145-148

TEXT: The organophosphorus compounds are highly active as additions to lubricating oils (Refs. 1-3). Some derivatives of dithiophosphorous, phosphoric, and phosphorous acids belong to them. The authors have taken the trouble to obtain organophosphorus compounds which are, amongst other things, also anti-oxidants, which hinder the oxidation¹ of hydrocarbons¹ by atmospheric oxygen. Thus, the authors tried to add acid esters of the phosphorous acid to the quinones. The reaction of dialkyl-phosphorous acids or phosphites with p-benzoquinone can take place in two ways and lead to: a) esters of dihydroxyphenylphosphoric acids (I) and (II), or b) compounds in which phosphorus is bonded with oxygen (III) and (IV) (Ref. 11). The authors have established that dialkyl-p-oxy-phenylphosphates are formed on the reaction of dialkylphosphorous acids with p-benzoquinone. As a result, the phosphorous group adds to the oxygen atom of the benzoquinone (see scheme). This addition is accompanied by a conversion of the

Card 1/3

The Interaction Between Dialkyl-phosphorous Acids and Quinones

80064
S/020/60/132/01/38/064
B011/B126

quinoid structure into a benzoid structure. The reaction between dialkylphosphorous acids and α -naphthoquinone is similar. Table 1 shows the melting temperatures and the results of analyses of the compounds produced. They are crystalline substances, soluble in aqueous alkali solutions. They give the characteristic color reaction for phenylhydroxyl with ferric chloride, but no reaction for the carbonyl group. The hydrolysis of the substances obtained with HCl (1:1), and the saponification with alcoholic alkalis at 40-50° gives a yield of 80%. All compounds produced contain only one hydroxyl group. On the basis of the ultraviolet absorption spectra the authors have stated that esters of p-oxyphenyl-phosphorous acid are concerned. As can be seen from table 2, the absorption maximum of the products is shifted towards short waves, and agrees with the maximum of dimethyl-p-methoxyphenylphosphate. Thus, the results given above show that the said substances are really dialkyl-p-oxyphenylphosphates (see scheme). The following were also quoted: V. S. Abramov, A. N. Pudovik, Yu. F. Kitayev, and G. Zametayeva. There are 2 tables and 18 references, 10 of which are Soviet.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Institute of Petroleum-chemical Synthesis of the Academy of Sciences, USSR)

Card 2/3

Organo-phosphorus chloro-compounds ...

S/081/62/000/006/090/117
B167/B101

to give a fraction of technical I in 70% yield (n^{20}_D 1.4580, d_4^{20} 1.1996, Cl found 30% as against 34.1% theoretical yield). Technical I is the antiwear additive Xloref-40 (Khloref-40), which gave positive test-bench results as a transmission oil additive. [Abstracter's note: Complete translation.]

X

Card 2/2

15-6600 1583, 2209

222-2
S/152/61/000/004/003/009
B126/B219

AUTHORS: Vinogradov, G. V., Podol'skiy, Yu. Ya., Shepeleva, Ye. S.

TITLE: Examination of mineral oil additives as seizing protectors
for steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz, no. 4,
1961, 63-67

TEXT: In this article, a new method of determining the effect of
additives on seizing and welding through friction of metals is described.
This method is based on a continuous change in the sliding speed over a
wide range. The tests were carried out on a four-sphere device with
automatic recording of the friction coefficient. The speed variation of
the upper sphere from 0 to $19.5 \cdot 10^3$ rpm was accomplished by a specially
constructed appliance. The spheres had 12.7 mm in diameter and were made
of WJX 6 (ShKh6) steel hardened to 62 H_c; all the experiments were carried
out at 20°C. The naphthenic paraffin fraction of the oil MC-14 (MS-14)
was used as a base oil, with the following additives: 1) 0.15 mole/l
dibenzyl disulfide, 2) 0.05 mole/l 1-trichloro-5-methylpentane, 3) 0.05 mole/l

Card 1/2

NUPELVA, V.I. S.

43

PHASE I BOOK EXPLOITATION

SOV/6034

Konferentsiya po khimii i primeneniyu fosfororganicheskikh soyedineniy. 2d.
Kazan', 1959

Khimiya i primeneniye fosfororganicheskikh soyedineniy; trudy (Chemistry
and Use of Organophosphorus Compounds; Conference Transactions) Moscow,
Izd-vo AN SSSR, 1962. 630 p. Errata slip inserted. 2800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Kazanskiy filial.

Resp. Ed.: A. Ye. Arbuzov, Academician; Ed. of Publishing House: L. S.
Povarov; Tech. Ed.: S. G. Tikhomirova.

PURPOSE: This collection of conference transactions is intended for chemists,
process engineers, physiologists, pharmacists, physicians, veterinarians,
and agricultural scientists.

COVERAGE: The transactions include the full texts of most of the scientific
papers presented at the Second Conference on the Chemistry and Use of

Card 1/14

Chemistry and the Use of Organophosphorus (Cont.)

SOV/6034

detergents, anticorrosion agents, antiwear additives, as well as serve as demulsifiers, antioxidants, and depressants. Methods for preparing industrial additives by synthesis are pointed out and described.

Sinin, P. I., Ye. S. Shepeleva, and B. V. Kleymenov [Institute of Petrochemical Synthesis]. Organophosphorus Compounds With CCl_3 as Additives to Lubricants

389

A synthesis of compounds containing the CCl_3 group has been made and their effect as wear-reducing additives under friction conditions at high loads studied. It has been shown that the effect of this type of compound depends largely on the presence of the CCl_3 group in the molecule and that the chloride film on the friction surface of the metal develops due to the effect of the chlorine atoms in the CCl_3 group.

Voskresenskiy, V. A. [Kazanskiy inzhenerno-stroiteľnyy institut (Kazan' Construction Engineering Institute)]. Trichlorotricresyl

Card 12/14

SHEPELEVA, Ye.S.; SHER, V.V.

Collected works of the Scientific and Technical Conference on
"Additives to lubricants and fuels." Reviewed by E.S.Shepeleva,
V.V.Sher. Neftekhimiia 2 no.3:420-423 My-Je '62. (MIRA 15:8)
(Lubrication and lubricants--Additives)

SHEPELEVA, YE.S., ULYANOVA, A.V., SHER, V.V., KLEYMENOV, B.V.,

Synthesis of friction wear-reducing additives and investigation of the
mechanism governing their action

Report to be submitted for the Sixth World Petroleum Congress,
Frankfurt, 16-26 June 63

"APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001549110010-9

SANIN, P. I.; SHEPELEVA, Ye. S.; MANNIK, A. O.; KLEYMENOV, B. V.

"Chemical modification of friction surfaces."

report submitted to Intl Lubrication Conf, Washington, D.C., 13-16 Oct 64.

APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001549110010-9"

SANIN, P. I.; SHEPELEVA, Ye. S.; MANNIK, A. O.; KLEYMENOV, B. V.

"Chemical modification of friction surfaces."

report presented at the Intl Lubrication Conf, Washington, D.C., 13-16 Oct 64.

Inst of Petrochemical Synthesis, AS USSR, Moscow.

L 51814-65 EWT(m)/EPF(c)/EWP(j) PC-4/Pr-4 RM

ACCESSION NR: AP5017013

UR/0204/64/004/006/0899/0905

20

AUTHOR: Myannik, A. O.; Shepeleva, Ye. S.; Sanin, P. I.

19

TITLE: Synthesis and properties of some esters of phosphoric, thiophosphoric and phosphinic acids

B

SOURCE: Neftekhimiya, v. 4, no. 6, 1964, 899-905

TOPIC TAGS: ester, phosphoric acid, phosphinic acid, organic sulfur compound, organic synthetic process

ABSTRACT: A number of esters of phosphoric, thiophosphoric, and phosphinic acids were synthesized and described. Esters of thiophosphoric acid containing thiol sulfur were prepared from sodium salts of dialkyl-thiophosphoric acids and alkyl halides, the salt with thione structure giving an ester with a thiol structure. Esters of thiophosphoric acid containing thione sulfur were produced by various methods: triethyl-thione phosphate by the reaction of sodium ethylate and phosphorus thiochloride; diethylbutylthione phosphate from the chloride of diethyl thiophosphoric acid. Esters containing the trichloromethyl group were produced by a scheme including the reaction of sulfur with the correspond-

Card 1/2

L 51814-65

ACCESSION NR: AP5017013

ing phosphite; esters of phosphinic acids were produced from the corresponding dichlorides of phosphinic acids and alcohols. The activity of the esters as additives for reducing wear under conditions of high loads were found to depend on the structure of the ester. Esters containing thiol sulfur are more active than esters containing thione sulfur. Esters containing the trichloromethyl group are the most active.
Orig. art. has: 11 formulas, 5 graphs, 2 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva AN SSSR
(Institute of Petro-Chemical Synthesis AN SSSR)

SUBMITTED: 29Apr64

ENCL: 00

SUB CODE: OC, GC

NR REF Sov: 009

OTHER: 007

JPRS

Sov Card 2/2

41-66 EFT(m)/EFT(j)/T DJ/RM
ACC NR: AP6030551 (4,1?)

SOURCE CODE: UR/0413/66/000/016/003/0'31

INVENTOR: Sanin, P. I.; Shepeleva, Ye. S.; Borodach, M. S.; Myannik, A. G.;
Vashavskiy, S. L.; Petyakina, Ye. I.; Vinogradova, I. E.

CRG: none

TITLE: Preparative method for bis(trichloroalkyl) esters of alkylphosphonic acids.
Class 12, No. 184844 (announced by the Institute of Petrochemical Synthesis, AN SSSR
(Institut neftekhimicheskogo sinteza AN SSSR))

SOURCE: Izobreteniya, prakticheskiye obraztsy, tovaryyye znaki, no. 16, 1966, 31

TOPIC TAGS: lubricant additive, mineral oil, alkylphosphonic acid

ABSTRACT: An Author Certificate has been issued for a preparative method for bis(trichloroalkyl) esters of alkylphosphonic acid of the general formula $R^2P(O)[C(CH_2)_nCCl_3]_2$ where R is an alkyl group and $n = 1, 2, 6, 8$. To obtain such esters suitable as additives to mineral oil, alkylphosphonic dichlorides are treated with trichloroalkyl alcohols in the presence of an organic base, e.g., pyridine. [SM]

SUB CODE: 07, 11/ SUBM DATE: 05May65/ TTD PRESS: 572

Card 1/1 5v

UDC: 547.551.3.07

ACC NR: APO011010

SOURCE CODE: UR/0413/66/000/014/0024/0024

INVENTOR: Sulin, V. I.; Shepeleva, Ye. S.; Borodach, M. S.; Myannik, A. G.; Kagan, Yu. S.; Gel'fer, A. P.; Faykin, D. M.; Camper, N. M.

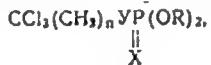
ORG: none

TITLE: Preparation of esters of phosphoric and thiophosphoric acids. Class 12, No. 183751 [announced by Institute of Petrochemical Synthesis, AN SSSR (Institut neftekhimicheskogo sinteza AN SSSR)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 24

TOPIC TAGS: insecticide, chloroalkyl phosphate, chloroallyl thiophosphate, ester, phosphoric acid

ABSTRACT: In the proposed method for the preparation of herbicides, the phosphoric and thiophosphoric esters of the general formula:



(where X and Y are O or S; n = 1, 4, 6, 8; and R is an alkyl) are obtained by the reaction of trichloroalkyl alcohols with tetrachloro-
alkanes [sic]. [WA-50; CBE No. 11]

SUB CODE: 07/ SUBM DATE: 21Jun65/

Card 1/1

UDC: 547.26'118.07

SHEPELEVICH, V.

Our practice in building with clay and straw mortar. Sel'stroi.
11 no.6:18-19 Je '56. (MIRA 9:9)

1. Starshiy inzhener Upravleniya po stroitel'stvu v kolkhezakh
Bashkirskey ASSR.
(Building materials) (Farm buildings)

SHEPELEVSKAYA, N.N. [Shepelevs'ka, N.M.] (Kiiv).

Generalized method for reducing the solution of the axisymmetrical problem of underground water flow to the solution of the plane problem [in Ukrainian with summaries in Russian and English]. Prykl. mekh. 4 no.1:87-96 '58. (MIRA 11:4)

1. Kiivs'kiy politekhnichniy institut.
(Water, Underground)

L 203-65 EWT(1)/EWP(m)/EPF(n)-2/EWA(d) Pd-1/Pu-4 WW

ACCESSION NR: AP5017072

UR/0198/64/010/005/0477-0483

37
36
B

AUTHOR: Kil'chevs'kyi, M. O. (Kil'chevskiy, N. A.) (Kiev); Shepelevs'ka, N. M. (Shepelevskaya, N. N.) (Kiev)

TITLE: Approximate solutions of certain hydroelastic problems

SOURCE: Prykladna mekhanika, v. 10, no. 5, 1964, 477-483

TOPIC TAGS: fluid mechanics, hydrodynamics, surface geometry, differential equation, integral equation

Abstract: A method in which a shell-liquid system is approximately replaced by a system having a finite number of degrees of freedom and allowing the use of the Euler-Lagrange principle has been studied. After analyzing the constraints imposed on the system, the authors show that from the conditions at the free surface there follows an equation of non-holonomic constraint which does not allow the application of the classical Ostrogradskiy-Hamilton and Euler-Langrange principles. However, by averaging over the volume enclosing the possible locations of the free surface, the above-mentioned constraint is replaced by a geometric constraint. This simplification makes possible the elimination (using the energy integral) of the relative velocity components (within the nonviscous fluid) from the

Card 1/2

I. 52203-65

ACCESSION NR: AP5017072

expression for the kinetic energy of the system. This, in turn, makes possible the use of the Euler-Lagrange principle in place of the Ostrogradskiy-Hamilton principle. The resulting system of integral-differential equations is a generalization of the well-known Jacobi equations.

Orig. art. has 4 formulas.

ASSOCIATION: Instytut mekhaniki AN URSR (Mechanics Institute, AN URSR)

SUBMITTED: 18Oct63

ENCL: 00

SUB CODE: ME, MA

NO REF Sov: 005

OTHER: 000

JPRS

Lia

Card 2/2

"APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001549110010-9

APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001549110010-9"

SHEPELEVSKIY, A. A.

"The Computation of Gradients on the Earth's Surface," Izvestiya ~~900~~,
1935 (1934), No 2-3, pp. 56-71.

SHETELEVSKIY, A. A.

"Accuracy of Temperature Determination in the Free Atmosphere,"
Trudy NIU GuGMS, Series I, No 19, 1945

SHEPELEVSKIY, A.

DROZDOV, C. and SHEPELEVSKIY, A., "Theory of Interpolation in the Stochastic Field of Meteorological Elements, and Its Application to Problem of Meteorological Charts and Rationalizations of Networks", Works of Sci-Res Institution of the Main Administration of the Hydrometeorological Service SSSR, Series 1, No 13, 1946 (65-115).
(*Meteorologiya i Gidrologiya*, No 6 Nov/Dec 1947)

SO: U-3210, 3 Apr 1953

SHEPELEVSKIY, M.I. [Shepelevs'kiy, M.I.], inzh.

Radioactive tracers. Nauka i zhyttia 8 no.11:15-19 N '58.
(MIRA 13:5)

(Radioactive tracers)

S/114/60/000/007/006/009
E194/E455

AUTHORS: Verbin, D.S., Engineer and Shepilevskiy, V.M., Engineer

TITLE: Automatic Welding of Steam Turbine Diaphragms in an Atmosphere of Carbon Dioxide at the Leningrad Metal Works (LMZ)

PERIODICAL: Energomashinostroyeniye, 1960, No.7, pp.29-31

TEXT. Welding of turbine diaphragms calls for accurate work of high quality. The following grades of steel are used in diaphragms for the body: 12X~~M~~ (12KhMF), 12M~~X~~ (12MKh), 20X~~M~~ (20KhM), 15X~~MA~~ (15KhMA), M~~Ц~~3 (MSt3); for the rims, the same grades except 15KhMA; for the blades, 1~~X~~13 (1Kh13) and 15X11~~M~~ (15Kh11MF); for shrouds, 1~~X~~13 (1Kh13); and for baffles, MSt3. Automatic welding in a carbon dioxide atmosphere has now been successfully developed for the following combinations of steel: MSt3 - 1Kh13; 12MKh - 1Kh13; and 12MKh - 12MKh. For welding parts of diaphragms made of steel MSt3 - 1Kh13, the welding wire is grade CB08F2CA (SVO8G2SA) and for steels 12MKh - 1Kh13 and 12MKh - 12MKh wire, CB08X~~Г~~CMA (SVO8KhGSMA). Previously, welding was done by hand and working conditions were very difficult. The main defects of hand welding were that the root

Card 1/5

S/114/60/000/007/006/009
E194/E455

Automatic Welding of Steam Turbine Diaphragms in an Atmosphere
of Carbon Dioxide at the Leningrad Metal Works (LMZ)

initial installation was found to have several defects and the method of centering and fixing the diaphragms was improved. Special burners were developed to ensure reliable gas protection of the molten metal to a depth of 75 mm and ultimately burners with lateral gas delivery were adopted. Delivery of gas from both sides was found to be the most reliable. By the end of 1958, welding conditions were determined by laboratory investigations of diaphragms with the following combinations of steel 1Kh13 ~ 12KhM and 1Kh13 ~ MSt3. Physical tests and chemical analysis of the weld metal gave satisfactory results and the diaphragm geometry was satisfactory. Details are given of the welding conditions that were found most satisfactory. The quality of the carbon dioxide is important, at present use is made of food quality carbon dioxide to standard ГОСТ 8050~56 (GOST8050~56) which does not, however, meet all requirements particularly in respect of water content. A number of steps are taken to prevent water reaching the arc zone. Recently, the works has received two instruments for checking the

Card 3/5

S/114/60/000/007/006/009
E194/E455

Automatic Welding of Steam Turbine Diaphragms in an Atmosphere
of Carbon Dioxide at the Leningrad Metal Works (LMZ)

improving the quality of the product. There are 4 figures
and 2 tables.

Card 5/5

SHEPELIN, O. P., Cand of Med Sci -- (dis.) "Influence of the Impulsive and Stable Noise on the Separate Function of the Organism in Both Production and Experimental Conditions," Leningrad, 1959, 17 pp (Leningrad Sanitary-Hygiene Institute) (KL, 6-60, 126)

SHEPELIN, O.P., aspirant

Problem of the effect of pulse noise on workers in industrial conditions. Gig.1 san. 24 no.8:26-32 Ag '59. (MIRA 12:11)

1. Iz kafedry obshchey gigiyeny Leningradskogo sanitarno-gigivenicheskogo meditsinskogo instituta i laboratorii po bor'be s proizvodstvennym shumom Vsesoyuznogo instituta okhrany truda Vsesoyuznogo tsentral'nogo soveta profsoyuzov VTS SPS (Leningrad). (NOISE, effects)

SHEPELIN, O.P.

Study of the influence of impulse and stable noise on the body.
Trudy LSGMI no. 58:237-272 '60. (MIRA 14:11)
(NOISE-PHYSIOLOGICAL EFFECT)

SHEPELIN, O.P., assistant

Effect of pulsating and constant noise on the organism under
experimental conditions. Gig.i san. 26 no.3:25-31 Mr '61.
(MIRA 14:7)

(NOISE—PHYSIOLOGICAL EFFECT)

SHIPELIN, O.P., kand.med.nauk

Comments on the article by V.M.Grigor'ev, Candidate of Medical Sciences, on "Some problems in the hygiene aspects of industrial noises". Gig. i san. 26 no.11:87-88 N '61. (MIR 14:11)

1. Iz Blagoveshchenskogo meditsinskogo instituta.
(NOISE PHYSIOLOGICAL EFFECT) (INDUSTRIAL HYGIENE)
(GRIGOR'EV, V.M.)

SHEPELIN, O.P., kand. med. nauk

Physiological and hygienic bases for the study and determination of standards for impulse noise. Gig. sanit. 28 no. 2:
85-488 '63
(MIRA 17:2)

1. Iz Blagoveshchenskogo gosudarstvennogo meditsinskogo instituta.

25(1)

202/115-5-2-0733

AUTHOR: Shepelin, S. G.

TITLE: A Portable Device for Checking Alternating Current Voltmeters and Ammeters

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 8, p 40 (USSR)

ABSTRACT. The electrician of a plant laboratory, V. A. Vorontsov, suggested a portable device for checking alternating current ammeters measuring up to 50 amps and voltmeters up to 450 volts, installed on instrument panels. The purpose of this equipment is to eliminate the removal of the instruments from the panel and transporting them to the laboratory for checking. The device consists of a case in which the following instruments are mounted: Ammeter AST, 2.5 - 5 amps; voltmeter ASTV, 150 - 300 volts; additional DV resistors for expanding the measuring range of voltmeter to 450 and 600 volts; current transformer UTT-5 with a primary current of 15, 50, 100, 150, 200, 300 and 600 amps and 5 amps secondary current; laboratory autotransformer LATR-2; load transformer with a 220-volt primary coil. The application of this device at Vorontsov's plant resulted in

Card 1/2

SOV/15-59-8-21/33

A Portable Device for checking Alternating Current Voltmeters
and Ammeters

An annual saving of 7,000 rubles. A note from the editor says that the checking of ammeters and voltmeters is performed faster in laboratories on stationary devices than by means of the described equipment. Consequently, this device should be introduced at plants only in case there are considerable difficulties in removing panel instruments for checking.

Card 2/1

"APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001549110010-9

PROBLEMS AND CONCERNED INVESTIGATIONS

Establishment of a special committee to study the problems of
the chemical industry in the U.S.S.R. and to propose measures to

MIN. 13-1

1. Foreign chemical industry Institute (mail P. Yu. Karpova)

APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001549110010-9"

SHEPELIN, V.F., inzh.

Calculation of parameters and construction of mechanical
characteristics of an automatic control system with a mag-
netic power amplifier. Elektrichestvo no.11:18-22 N '65.
(MIRA 18:11)

1. ChETNII.

SHEPELOV, L., mayor

This must be adopted. Voen.sviaz. 16 no.4:42 Ap '58. (MIRA 11:4)
(Radio, Military--Equipment and supplies)

SHAPEROV, L., mayor

We study reception and transmission simultaneously. Voen. vest.
40 no. 1:101-102 Ja '61. (MIR 13:12)
(Radiotelegraph)

5/12/1981 11:10:00 AM

USSR/Physiology of Human and Animal - Metabolism

R-3

Abs Jour : Referat Zhur - Biologii, No 16, 1957, 70436

Author : Gordon, B.G. , Shepelov, M.B.
Title : Ammonia and Glutamine Content of the Blood of Cats
with Different Kinds of Anastomoses, Developing After
Constriction and Complete Closure of the Portal Vein.

Orig Pub : Bull. experim. biol. medizini, 1956, 42, No 12, 23-28

Abstract : Blood of animals was drawn 3-5 hrs after meat-meal on the
3-5 day after applying of constricting ligature, then
after 3 weeks in presence of several anastomoses, and
5-7 days after complete ligature of the portal vein.
Operative action on the portal vein, led to an increase
in the blood of NH_3 (aver. plus 106%), and of glutamine
(plus 31%); particularly prominent in cases of complete
closure of the portal vein and a considerable develop-
ment of porto-caval anastomoses, and the least in the
development of the hepato-lobal anastomoses. It is

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APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001549110010
USSR/Physiology of Human and Animal - Metabolism R-3

Abs Jour : Referat Zhur - Biologii, No 16, 1957, 70436

proposed that for experimental purposes that the Pavlov
apparatus should be substituted by a simpler approach-
that of stenosis, following it by a complete ligature of
portal vein. The porto-caval anastomoses, in the opinion
of the author, can act as the pavlovian fistulae.

Card 2/2

- 90 -

USSR / Cultivated Plants. Fruit Trees. Small Fruit X
Plants. Nut Trees. Tea.

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25020

Author : Shepel's'ka, O. G.
Inst : Not given
Title : Effectiveness of Mineral Fertilizers at
Different Methods of Application in Young
Orchards

Orig Pub : Byul. nauk.-tekhn. inform. po sadivnytstvu,
1957, No 4, 25-28

Abstract : Methods for the application of mineral
fertilizers in young orchards were investi-
gated by the Mleyev Experimental Station of
Horticulture in the course of 6 years. In
the experiments were the variants: without
manure, NPK, at the rate of 60 kg/ha into

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USSR / Cultivated Plants. Fruit Trees. Small Fruit M
Plants. Nut Trees. Tea. APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001549110010-

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25020

apertures at a depth of 35-40 cm (4
apertures on 1 m); NPK, at the rate of
60 kg/ha at the furrow to a depth of 30 cm,
and NPK, at the rate of 60 kg/ha under the
plow to a depth of 20-22 cm. Once in 3
years on the entire area, and also on that
under control, 20 t/ha of manure was intro-
duced. The mineral fertilizers were
applied yearly in autumn. The application
of fertilizers under the plow in the period
of autumn plowing was most effective. By
this method of fertilizer application, the
root system is not impaired, and it utilizes
the fertilizers more energetically. --
A. M. Shevchenko

Card 2/2

SIMIRENKO, Lev Platonovich [deceased]; SHEPEL'SKIY, A.I., kand. sel'-khoz. nauk, glav. red.; KOVTUN, I.M., kand. sel'khoz. nauk, zam. glav. red.; POSTYUK, A.V., zam. glav. red.; RODIONOV, A.P., doktor biol. nauk, zam. glav. red.; DEM'YANETS, Ye.F., starshiy nauchnyy sotr., red. toma; LISOVENKO, L.T., kand. biol. nauk, nauchnyy sotr., red. toma; NIKONENKO, M.N., kand. biol. nauk, red. toma; POSTOYUK, A.V., red.; DEREVYANKO, G.S., tekhn. red.

[Pomology in three volumes; apple, pear, stone fruits] Pomologiia v trekh tomakh; iablonia, grusha, kostochkovye porody. Kiev, Izd-vo Ukrainskoi Akad. sel'khoz. nauk. Vol.1. [Apple] IAblonia. 1961. 578 p.

(MIRA 15:2)

1. Ukrainskiy nauchno-issledovatel'skiy institut sadovodstva
(for Dem'yanets, Lisovenko).

(Apple—Varieties)

NIKOL'SKIY, I.P.; BILIAK, I.I.

Long use of the Mar'ianchik filters. Saith.prom. 31 no. 8:47-48
Ag '57. (MLR4 10:8)

I.I.ironovskiy sakharneyy zavod.
(Filters and filtration)

SHEPSI'SKIY, M. Ya.: Master Tech Sci (diss) -- "Investigation of the elastic-plastic operation of steel beams reinforced before loading and under load".
Khar'kov, 1959. 12 pp (Min Higher Educ Ukr SSR, Khar'kov Construction
Engineering Inst), 150 copies (KL No 11, 1959, 120)

RYZHENKO, Ivan Maksimovich, kand. tekhn. nauk, dots.; NEVYAZHSKIY, Ya.I. , prof., retsenzent; BRILING, it.S., kand. tekhn. nauk, retsenzent; GULYAYEV, P.V., kand. tekhn. nauk, dots., retsenzent; NIKOLAEVSKIY, G.K., kand. tekhn. nauk, dots., retsenzent; SHEPEL'SKIY, P.F., dots., otv. red.; LOS', T.A., red.; S'ILYANSKAYA, T.M., tekhn. red.

[Orthogonal and axonometric sketching]Ortogonal'noe i aksonometricheskoe eskizirovanie. Khar'kov, Izd-vo Khar'kovskogo univ., 1960. 118 p. (MIR. 15:10)
(Mechanical drawing)

PHASE I BOOK EXHIBITION SOV/4266

Progressivaya tekhnologiya i vysokoprovodimyye instrumenty: opt. KTRUZ imeni Kirva (Advanced Processing and Highly-Productive Tools: Experience of the Kirov Turbogenerator Plant and Kirov), Moscow, 1980.

Reviewer: P. Ye. Durdik, Engineer; Ed.: M. S. Sorok; Chief Ed. (Southern Division, Kirov); V. K. Seryuk, Engineer.

PURPOSE: This booklet is intended for technical personnel and innovators.

COVERAGE: The booklet discusses the experience of innovators and technical personnel in introducing advanced processes and machine tools at the KTRUZ imeni Kirva (Kirov Turbogenerator Plant) for the manufacture of steam turbine rotors; for tapping outer threads, processing steam turbine blades, experience in introducing artificial cooling for interference fits, and in mastering the manufacture of welded steam-turbine rotors is described. The

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Advanced Processing (Cont.)

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booklet covers the advances in technology developed and introduced at the factory in the last few years. No personalities are mentioned. No references are given.

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Advanced Processing (Cont.)

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Savchenko, P. A. Manufacture of Turbine Blisks for the East-Stage Main Diesel-Genarator 103

Shuplyakova, B. G. What's New in the Production of Thermal Blisks 129

Zolotukhin, S. D. Welded Steam Turbine Rotors 152

AVAILABLE: Library of Congress
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SOV/4266
11-14-60

28945

11100

S/114/61/000/011/002/003
E194/E555

AUTHOR: Shepel'skiy, P.F., Engineer

TITLE: Mechanisation of the machining of complicated shaped surfaces

PERIODICAL: Energomashinostroyeniye,⁷ no.11, 1961, 31-33

TEXT: Existing methods of machining turbine blades include milling with cylindrical milling cutters having spiral teeth, shaping, or planing combined with turning. These methods are slow and not accurate enough. It is considered that the quickest methods of machining the shaped surfaces of turbine blades are: (1) blades of 10-200 mm long should be machined simultaneously over the entire length, or in two passes, using conical or shaped milling cutters, depending upon the blade design, and a flat template. (2) Blades of length 140 mm and upwards should be machined with shaped milling cutters covering the entire width of the blade profile, using one or two flat templates. As almost no special machines are made for machining steam turbine blades, the works was obliged to design and make a number of fixtures for this kind of machining. Fig.4 shows a semi-automatic device for milling the external profile of blades with a spiral milling cutter. The Card 1/8

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Mechanisation of the machining of ... S/114/61/000/011/002/003
E194/E555

following notation is used: 1 - the blade; 2 - a hydraulic cylinder; 3 - machine table; 4 - rotating table; 5 - template. The blade is fixed so that the centre of rotation of the table coincides with the centre of the external profile of the blade. The flat template is designed in polar coordinates and governs the position of the milling cutter. With this fixture the machining time was 0.34 hours against 1.46 hours with the usual method, and the accuracy was of the required standard. Fig.5 shows a diagram of templates for a semi-automatic fixture on a horizontal milling machine, type A663B (A663V). This is a single-spindle machine whose arbor can be moved vertically up and down a column. In the diagram, 1 denotes the template for turning the part and 2 the template for milling. A rotating cradle with clamp is fixed to the machine table, which is fed horizontally. The vertical template is fixed to the table and acts through a roller and adjustable collar on to the spindle stock of the machine, which is disengaged from the vertical feed screws. Thus the shaped milling cutter, which covers the whole width of the blade profile, can move vertically, repeating the template curves. The second horizontal template is also fixed to the machine table and is

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²⁸⁹⁴⁵
Mechanisation of the machining of ... S/114/61/000/011/002/003
E194/E555

designed to rotate the cradle of the fixture and with it the part being machined. In this way, using two flat templates, it is possible to mill the internal and external shaped surfaces of steam turbine blades which vary both in section and in twist. The equipment has been designed and made at the KhTGZ and is shown diagrammatically in Fig.6. The machining time for one passage of a blade 7/40 mm long is 32 minutes which is much faster than could be achieved on any planing machine. After adjusting the templates the minimum grinding tolerance of the profile was reduced to 0.7 mm which is also better than can be achieved by planing, although it is still greater than required (0.3 mm). The milling cutter design is not yet altogether satisfactory, and even when skew-teeth were used the output was still not good enough. Special skew-teeth milling tools are now being designed with a spiral angle of 25-40° and a front angle of 10-30° which should increase the output by at least 50% while preserving the necessary accuracy. There are 6 figures.

Card 5/5

SHEPEL'SKIY, Yu.F. [Shepel's'kyi, IU.F.]

Bacteriological problems of the sugar industry. Khar.prom.
no.1:81-83 Ja-Mr '62. (MIRA 15:8)
(France—Sugar—Bacteriology)

ACC NR: AR6036136

(N)

SOURCE CODE: UR/0398/66/000/010/A058/A058

AUTHOR: Shepel'skiy, Yu. L.

TITLE: Nomogram for determining the heat-insulation thickness of marine piping systems

SOURCE: Ref. zh. Vodnyy transport, Abs. 10A490

REF SOURCE: Tr. Leningr. in-ta vodn. transp., vyp. 87, 1966, 142-143

TOPIC TAGS: shipbuilding engineering, heat insulation, *ship component, pipe, graphic technique*

ABSTRACT: A calculation nomogram for determining the heat-insulation thickness of marine piping systems is discussed. The nomogram can be used by design bureaus and technical departments of shipbuilding plants.

SUB CODE: 13/ SUBM DATE: none/

Card 1/1

UDC: 629.12.06

L 15213-66 EWT(m)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(h) JD

ACC NR: AP6002912

SOURCE CODE: UR/0286/65/000/024/0074/0074

INVENTOR: Shepelyakovskiy, K. N.; Stroganov, K. V.; Shklyarov, I. N.; Orlov, I. V.;
Nikonov, V. F.; Assonov, A. D.

ORG: none

TITLE: Steel for surface-hardened parts. Class 40, No. 177083SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 74

TOPIC TAGS: steel, surface hardened steel, manganese containing steel, silicon containing steel, chromium containing steel, shallow hardenable steel

ABSTRACT: This Author Certificate introduces a steel for surface-hardened parts containing 0.4—1.2% carbon and alloyed with manganese, silicon, and chromium. To obtain steel with a specified hardenability, one of three alloying elements is added in a specified amount and the content of the other two is limited. For example, in steel containing 0.3—1.4% manganese, the chromium and silicon contents are limited to 0.15% and 0.17%, respectively. Steel with 0.3—1.4% silicon should contain 0.15% chromium and 0.20% manganese, and steel with 0.3—1.8% chromium should contain 0.20% manganese and 0.17—0.27% silicon. [AZ]

SUB CODE: 11/ SUBM DATE: 29Dec60/ ATD PRESS: 4190

TS
Card 1/1

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B

2

SHEPELMOVSKIY, L. Z. and S. E. RYSKIN.

Novaia avtomaticheskaiia ustanovka dlia zakalki kolenchatykh valov.
(Vestn. Mash., 1948, no. 4, p. 36-39)

(New automatic device for hardening crankshafts.)

DLC: TN4.V4

SC: Manufacturing and Mechanical Engineering in the Soviet Union,
Library of Congress, 1953.

SHEPELYAKOVSKIY, K. I.

"Experience in Operating High-Frequency Installations at the Automobile Plant imeni Stalin," Collection of Data of the Scientific and Technical Session on Electric Power Economy (Sbornik materialov nauchno-tehnicheskoy sessii po ekonomii elektroenergii), No II, MONITOE, 1949, 139 pp.

All-Union Scientific and Technical Society of Power Engineers Moscow Division, Industrial Electrical Engineering Section.

W - 15368, 6 Dec 50

CHIEPEI TAKOVSKIY, K. Z. and S. E. RYSKIN.

Tekhnika primeneniia induktsionnogo nagreva. Moskva, Nashgiz, 1949. 240 p.
(Technique of the application of induction heating.)

St.: Manufacturing and Mechanical Engineering in the Soviet Union,
Library of Congress, 1953.

1. Иван Иванович ШКЛЯЕВ, К.Е.: SHKLYAEV, I.I.
2. U.S.R. (U)
4. Automobile Industry
7. Automatic machine for the transfer of parts heated with high frequency currents.
Avt. trakt. po ... no. 11. 1952
9. Monthly List of Russian Acquisitions. Library of Congress, March, 1952. Unclass. filed.

SHEPELYAKOVSKIY, K.Z.

Centralized feeding of induction heating installations. [Izdaniia]
LONITOMASH no.30:162-173 '52.
(MLRA 8:1)
(Induction heating)

SHEPELYANKOVSKIY, K.Z.; SHKLYAROV, I.N.

High-frequency surface hardening of flywheel gear rims. Avt.trakt.prom. no.
11:14a-b '53. (MLRA 6:11)
(Flywheels) (Hard-facing)

SHEPELYAKOVSKIY, K.Z.

SLUKHOTSKIY, A.Ye.; RYSKIN, S.Ye.; SHEPELYAKOVSKIY, K.Z., kandidat
tekhnicheskikh nauk, retsenzent; GOLOVIN, G.F., kandidat tekhnicheskikh nauk,
redaktor; PETERSON, M.M., tekhnicheskiy redaktor

[Inductors for induction heating of machine construction parts;
planning and manufacture] Induktory dlia induktsionnogo nagreva
mashinostroitel'nykh detalei; proektirovanie i izgotovlenie. Moskva,
Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954.
319 p.

(Induction heating) (Machinery industry)

(MLRA 7:11)

SHEPELYAKOVSKIY, K.Z.

RABIN, M.O.; SHEPELYAKOVSKIY, K.Z.

Surface hardening of malleable ferrite cast iron with high-frequency
heating. Lit.proizv. no.9:10-12 D'54. (MLRA 8:2)
(Cast iron--Hardening)

SHEPELYAKOVSKIY, K.Z.

Examining high-frequency surface hardening with self-annealing.
[Izd.] LONITOMASH no.35:135-153 '54.
(Cementation (Metallurgy))

(MIRA 8:2)

SHEPELYAKOVSKY, K. Z.

USSR/ Engineering - Metallurgy

Card : 1/1

Authors : Assonov, A. D., Laureate of the Stalin Prize, Cand. Tech. Sc.; Shepelyakov-
skiy, K. Z., Cand. Tech. Sc.; Lankin, P. A., Cand. Tech. Sc.

Title : Rapid cementation during heating with high-frequency current

Periodical : Vest. Mash., 34, Ed. 6, 56 - 60, June 1954

Abstract : A comparison is made between cementation method of articles in a furnace without muffles, using vaporized liquid carburizers, and a new method which uses a gas for treating the surface, the article being placed in a muffle and the heat produced by high-frequency current. A complete analysis is given of results obtained with various temperatures and the method is found to be adaptable to high-speed automatic production. Graphs; drawings; tables; illustrations.

Institution : ...

Submitted : ...

SHEPELYAKOVSKIY, Konstantin Zakharovich, kandidat tekhnicheskikh nauk;
KRASIK, B.A., professor, doktor tekhnicheskikh nauk, redaktor;
KONTSEVAYA, E.M., redaktor; KRYNOCHKINA, K.V., tekhnicheskiy re-
daktor

[High frequency surface hardening of steel in machine building]
Vysokochastotnaia poverkhnostnaia zakalka stali v mashinostroenii.
Moskva, Vses. uchebno-pedagog. izd-vo Trudrezervizdat, 1955. 52 p.
(Steel--Hardening) (MIRA 8:7)

~~SHEPELYAKOVSKIY, K.Z.~~, kandidat tekhnicheskikh nauk; BOGATYREV, Yu.M.,
~~kandidat tekhnicheskikh nauk, retsenzent~~; KUNYAVSKIY, M.N., kandi-
dat tekhnicheskikh nauk, redaktor; POPOVA, S.M., tekhnicheskiy re-
daktor

[Self-hardening of steel in high frequency tempering] Samootpushk
stali pri vysokochastotnoi zakalke. Moskva, Gos. nauchno-tekhn.
izd-vo mashinostroit. lit-ry, 1955. 106 p. (MIRA 8:?)
(Steel--Heat treatment)

ASSONOV, A.D., kandidat tekhnicheskikh nauk; SHEPELYAKOVSKIY, K.Z.,
kandidat tekhnicheskikh nauk; LANKIN, P.A., kandidat tekhniches-
kikh nauk.

Accelerated carburization using high-frequency heating. Metal-
loved.i obr.met. no.3:39-50 S '55. (MIRA 9:3)

1. Avtozavod imeni Stalina.
(Induction heating) (Cementation (Metallurgy))

ASSONOV, A.D., kandidat tekhnicheskikh nauk, laureat Stalinskoy premii;
SHEPELYAKOVSKIY, K.Z., kandidat tekhnicheskikh nauk; LANKIN, P.A.,
Kandidat tekhnicheskikh nauk.

Rapid cementation by means of high frequency heating. Avt. trakt.
prom. no. 5:(insert) My '55. (MLRA 8:8)

1. Moskovskiy avtozavod imeni Stalina.
(Cementation (Metallurgy))

AID P - 4256

Subject : USSR/Engineering

Card 1/1 Pub. 128 - 14/33

Authors : Shepelyakovskiy, K. Z., Kand. Tech. Sci., and I. N.
Shklyarov, Engineer

Title : Automatic heating-forging unit

Periodical : Vest. mash., #1, p. 45-49, Ja 1956

Abstract : Description and design of a unit combining the operation
of high-frequency induction heating with stamping or
forging of a valve tappet. Diagrams, photos.

Institution : None

Submitted : No date

SHEPELYAKOVSKIY, K.Z., kandidat tekhnicheskikh nauk.

Prospective use of high-frequency heating in automobile and
tractor construction. Avt. i trakt. prom. no.3:28-32 Mr '56.
(MIRA 9:7)

1. Moskovskiy avtozavod imeni Stalina.
(Metals--Heat treatment) (Electric heating)

SHEPELYAKOVSKIY, G.Z., kandidat tekhnicheskikh nauk.

High-speed cementation. Nauka i zhizn' 23 no.3:47 Mr '56.
(Cementation (Metallurgy)) (MLRA 9:7)

Shepelyakovskiy, K.Z.

USSR/ Engineering - Heating and forging units

Card 1/1 Pub. 128 - 14/33

Authors : Shepelyakovskiy, K. Z., and Shklyarov, I. N.

Title : Automatic heating and forging units

Periodical : Vest. mash. 36/1, 45-49, Jan 1956

Abstract : The Automobile Plant im. Stalin, designed and constructed several devices for induction heating, automatic charging and heading of blanks and small components for automobile engines. Illustrations and drawings of the above mentioned units are given, with a description of their construction, methods of installation and operation. One USSR reference (1955). Diagram; drawings; illustrations.

Institution :

Submitted :

129 - 2 - 8/10

AUTHOR: Assonov, A.D., Candidate of Technical Sciences,
Shepelyakovskiy, K.Z. and Lanikr, P.A. (Moscow)

TITLE: Mechanical Properties of Steel Subjected to High Speed Cementation
During High Frequency Heating. (Mekhanicheskiye svoystva stali,
Podvergnutoy skorostnoy tsementatsii pri nagreve ТВЧ.).

PERIODICAL: Metallovedenie i obrabotka metallov, 1957, No. 2, pp 46-48
(U.S.S.R.)

ABSTRACT: The influence of high cementation temperatures on the mechanical
properties of steel were investigated between 1938 and 1943 by
S.S. Stroev who carried out cementation of components in a solid
carburizing agent at 1100-1140°C for a period of ten hours. Some
of the results obtained by Stroev are reviewed (Tables 1 and 2,
p. 46). The authors cite data obtained experimentally as a result
of high temperature gas cementation, using high frequency heating,
for specimens and gears made from 18M7 steel (composition:
≤ 0.16-0.24% C, 0.17-0.37% Si, 0.80-1.10% Mn, 1.00-1.30% Cr,
0.40% Ni, 0.08-0.15% Ti) after hardening from 870°C and tempering
at 200°C; depending on the quality of the melt the values varying

Card 1/3

129 - 2 - 8/10

TITLE:

Mechanical Properties of Steel Subjected to High Speed Cementation During High Frequency Heating. (Mekhanicheskiye svoystva stali, Podvergnutoy skorostnoy tsementatsii pri nagreve T.S.L.).

within the limits given in Table 4, p. 47. Comparison of these data with data obtained at sub-zero temperature (given in Table 5, p. 47) shows that high temperature heating does not have an adverse effect on the strength properties of steel. The influence of high temperature heating on the strength of steel was also investigated for specimens made from four other types of steel; the resulting mechanical properties are given in Table 6. The data given in Table 7 were obtained for steel heated in vacuum in the Vacuum Metallography Laboratory of the Engineering Research Institute Ac.Sc., under the direction of M.G. Lozinskiy. The data given in Table 8 were obtained after making apparent the grains by the oxidation method. The presence of Ti and Zr carbides in the steel impedes grain growth. Therefore, steel containing such carbides can be heated during carburization to up to 1200°C which permits a considerable shortening of the carburization process. Apparently over-heating Cr-Mn-Ti steel specimens with a naturally fine grain during case hardening does not influence the fatigue limit of this steel.

Card 2/3

SHEPELYAKOVSKIY, KZ

25(1)

PHASE I BOOK EXPLOITATION

SOV/1368

Assonov, Aleksandr Danilovich, Konstantin Zakharovich Shepelyakovskiy, and
Petr Aleksandrovich Lankin

Gazovaya tsementatsiya s induktsionnym nagrevom (Gas Carburizing With Induction
Heating) Moscow, Mashgiz, 1958. 87 p. 6,000 copies printed.

Reviewer: Lozinskiy, M.G., Doctor of Technical Sciences; Ed.: Shmykov, A.A.,
Doctor of Technical Sciences; Tech. Ed.: Model', B.I.; Managing Ed. for
Literature on Metalworking and Machine-Tool Manufacture (Mashgiz):
Beyzel'man, R.D., Engineer.

PURPOSE: This book is intended for engineers and technicians.

COVERAGE: The book deals with the practical aspects of a new method of rapid
gas carburizing with immediate quenching, specifically as carried out with
high-frequency induction heating. The immediate-quenching aspect required
the development of new types of steel, since older methods involved heating
after carburization. One such type of steel is that bearing the designation
18KhGT, developed by the Moscow Motor Vehicle Plant in collaboration with

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Gas Carburizing With Induction Heating

SOV/1368

NAMI (Scientific Institute for Automobile Engines). In 1947 the same plant developed the method of gas carburizing with the aid of induction heating. Industrial application of the method was begun in 1953. The principal significance of the new method lies in the fact that practical use is made of elevated temperatures (1150-1200°C) for carburizing. The effect of these high temperatures on the properties of the cemented layer has to be studied further. The book contains material not previously published, describing methods, tested in practice, of gas-carburizing gear wheels on a mass scale. Techniques and equipment are described in detail. Recommendations are made for the adoption of the new process in industry. The following are mentioned as having taken part in developing the new carburizing method: S.A. Yaitskov, Engineer; I.N. Shklyarov, Engineer; M.O. Rabin, N.V. Senyushkin; A.N. Zhivotovskiy; N.I. Borisov. There are 21 references, all Soviet.

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1. Purpose of the carburization process and quality requirements of carburized products	5
2. Characteristics of modern carburizing methods	7

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SHEPELYANKA SKEV, R. Z.

PAGE 2 BOOK INFORMATION

807/159

Author: Dos machinicheskicheskoye proizvedeniye is. V.M. Berzinskogo
 Sverdlovskoye izdatelstvo tekhnicheskoye obshchosti (Contemporary Allloys and Their
 Heat Treatment) Novosibirsk, 1956. 569 p. 12,000 copies printed.
 Additional Distributor: Otdelnoye po razrabotkam po politicheskikh i
 ekonomicheskikh zashchitnykh sredstv.

Ed. (Title page): Yu. A. Gulyayev, Doctor of Technical Sciences, Dr. (Institute Doctor);
 V.P. Kharlamov, Engineer; Tech. Ed.: S.I. Nodar; Managing Ed. for
 Laboratory on Metal Working and Tool Making: N.D. Berzinskaya, Engineer.

PURPOSE: The book is intended for engineering and technical personnel of heat-treatment, shop and test laboratories of machine-building plants.

CONTENTS: This collection of 20 articles, compiled by 15 authors, aims to acquaint the reader with modern practice in the heat treatment of steels. The authors are primarily concerned with the development of various types of structural, special, and heat-resistant steels and with the use of their alloying elements. Materials-handling equipment is described at some length. The treatment of alloys, particularly those of titanium, also comes within the scope of the collection. The book is thoroughly illustrated, and a good deal of the material is shown in graphical form. Among the problems dealt with are the selection of deformation, the introduction of the automatic control of heat-treatment equipment, together with fully mechanized tool manufacture, and the optimum proportions of different alloying elements. There are numerous tables and diagrams. Bibliographical listing placed at the end of chapters are predominantly Soviet. The articles comprising this collection are reports from Soviet conferences held in the Scientific and Technical Propaganda House (SNTs) in Moscow. The book is published by Sovzvezdye.

Contemporary Allloys and Their Heat Treatment

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Shchegolevich, N.D. Future Prospects for the Use of High-Frequency Currents in Heat Treatment 807
 Polozhko, N.M. Mechanization of the Heat Treatment of Tools 808
 Ponomarev, Yu. I. Rapid Quality-control Method in the Heat Treatment of Parts 809
 Leshchenko, V.P. Weldable Aluminothermic Allloys 810
 Teplovin, Ye. D. Fatigue Strength of Industrial Titanium 811
 Klyuchnikov, N.A. Strength of Welded Joints Made of VTD Industrial Titanium 812

AVAILABILITY: Library of Congress

607/159
5-22-59

Card 6/6

SOV/137-59-1-1824

Translation from Referativnyy zhurnal Metallurgiya 1959, Nr 1, p 241 (USSR)

AUTHOR: Shepelyakovskiy, K. Z.

TITLE Heat Treatment of Machine Parts by High-frequency Currents
(Termoobrabotka detaley s nagrevom tokami vysokoy chastoty)

PERIODICAL: V sb.: Materialy Soveshchaniya glavn. metallurgov z-dov i
in-tov avtomob. prom-sti. Nr 3. Moscow, 1958. pp 81-84

ABSTRACT: The author recommends conversion to high-frequency-current (HFC) surface hardening of certain heavy-duty machine parts, such as axles; naturally, for that purpose it is necessary to know which grade of steel should be selected. At the present time the plant uses St-40Kh steel for ZIL-150 automobile axles which, upon surface hardening are characterized by a torque moment of 1840 kgm and 614,000 cycles prior to fatigue failure. The author points out the expediency of a more extensive study of the carburization process using HFC heating. To achieve this a suitable technology and composition of the gas carburizer should be developed. At the im-
Likhachev plant work is carried out on the surface hardening of
gears by HFC heating

A. B

Card 1/1

SHI PERYANOVSKIY, K.

129-4-12/12

AUTHOR: Rustem, S.L.

TITLE: All-Union Conference on industrial use of high frequency currents held in Leningrad. (Vsesoyuznoye soveshchaniye po promyshlennomu primeneniyu t.v.ch. v g. Leningrade).

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, No.4, pp. 61-64 (USSR).

ABSTRACT: The conference held in November, 1957 was convened by the Leningrad Scientific and Technical Society of the Engineering and Power Generation Industry (Leningradskoye Nauchno-Tekhnicheskoye Obshchestvo Mashinostroitel'noy i Energeticheskoy Promyshlennosti). The task of the conference was to report on advanced experience, to discuss achievements in this field outside the Soviet Union and to evolve recommendations for expanding the use of high frequency in industry and introduction of progressive technology and also evolving organisational measures for improving the quality of high frequency equipment and apparatus. The conference included sections for

induction heating technology, metals technology, non-conducting materials and equipment.

Candidate of Technical Sciences, M.A. Spitsyn (NII TVCh

imeni V. P. Vologdin) read the paper "New developments

Card 1/14 in the field of industrial application of high frequency